



Assessing the Impact of High Touch Specialty Pharmacy Services in Patients Receiving Teriparatide

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BACKGROUND

- Teriparatide stimulates bone growth in patients suffering from osteoporosis and may benefit those who have failed other options.¹
- A significant amount of patients do not complete the recommended two years of treatment with teriparatide.²
- In 2013, the Vanderbilt Specialty Pharmacy (VSP) integrated a full-time clinical pharmacist into the Vanderbilt University Medical Center (VUMC) Endocrinology clinic to assist with continuity of care.

Clinical pharmacist responsibilities:

Access	Education	Monitoring
<ul style="list-style-type: none"> • Obtaining medication access through insurers • Procuring medication for uninsured • Ensuring cost-effectiveness for patients • Mitigating access barriers while on treatment 	<ul style="list-style-type: none"> • Prescribers: <ul style="list-style-type: none"> • Specialty medication options to guide therapy decisions • Patients <ul style="list-style-type: none"> • Thorough medication overview and monitoring plan. • Obtaining and reviewing ancillary supplies 	<ul style="list-style-type: none"> • Appropriate work-up prior to treatment initiation • On-treatment adherence, safety and efficacy monitoring

OBJECTIVES

- **PRIMARY OBJECTIVE:** Assess teriparatide completion rates between patients who receive medications through VSP using the high-touch model compared to those who do not.
- **SECONDARY OBJECTIVES:** Evaluate and describe the number and types of patient contacts by the integrated specialty pharmacist as well as assess the impact of financial assistance on completion of treatment.

METHODS

- This is a single-center, retrospective, cohort study of patients. The two years following initial prescribing of teriparatide were reviewed.
 - **Non-VSP:** Initial prescription between January 2009 and December 2010.
 - **VSP:** Initial prescription between June 2014 and July 2015.
- **Inclusion criteria:** prescribed teriparatide for the first time by a provider at the VUMC Endocrinology Clinic
- **Exclusion criteria:** previously received a prescription for teriparatide prior to this time period, but did not complete treatment.
- **Primary endpoint:** teriparatide treatment completion
- **Secondary endpoints:** months of teriparatide completed, baseline characteristics related to treatment completion, financial assistance provided (VSP only), number and type of pharmacist contact (VSP only).

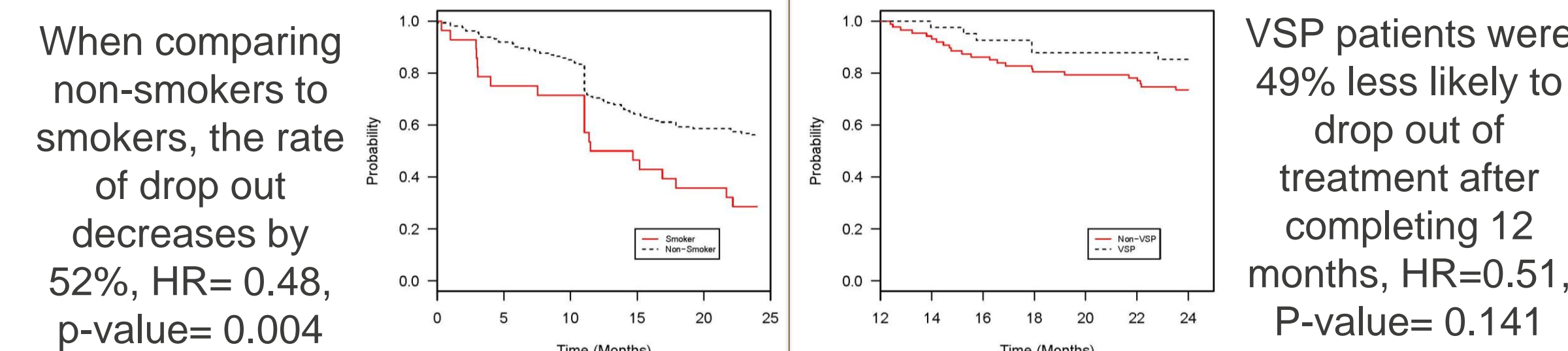
RESULTS

Primary Outcome of Teriparatide Treatment Completion for All Patients

Univariate Logistic Regression Model			
	OR	95% C.I.	P-value
Age (per 1 year)	1.03	1.00 - 1.05	0.022*
Male vs. female	0.69	0.34 - 1.41	0.311
Non-smoker vs. smoker	3.20	1.33 - 7.70	0.009*
Calcium supplementation (yes vs. no)	1.72	0.95 - 3.13	0.073
Vitamin D supplementation [†]	1.38	0.74 - 2.56	0.310
Fracture at baseline [‡]	0.88	0.48 - 1.59	0.665
VSP vs. non-VSP	1.62	0.86 - 3.03	0.133

*Indicates statistical significance; [†]Indicates variable vs. no variable
OR= odds ratio; C.I.= confidence interval; VSP= Vanderbilt Specialty Pharmacy

Cox Univariate Models

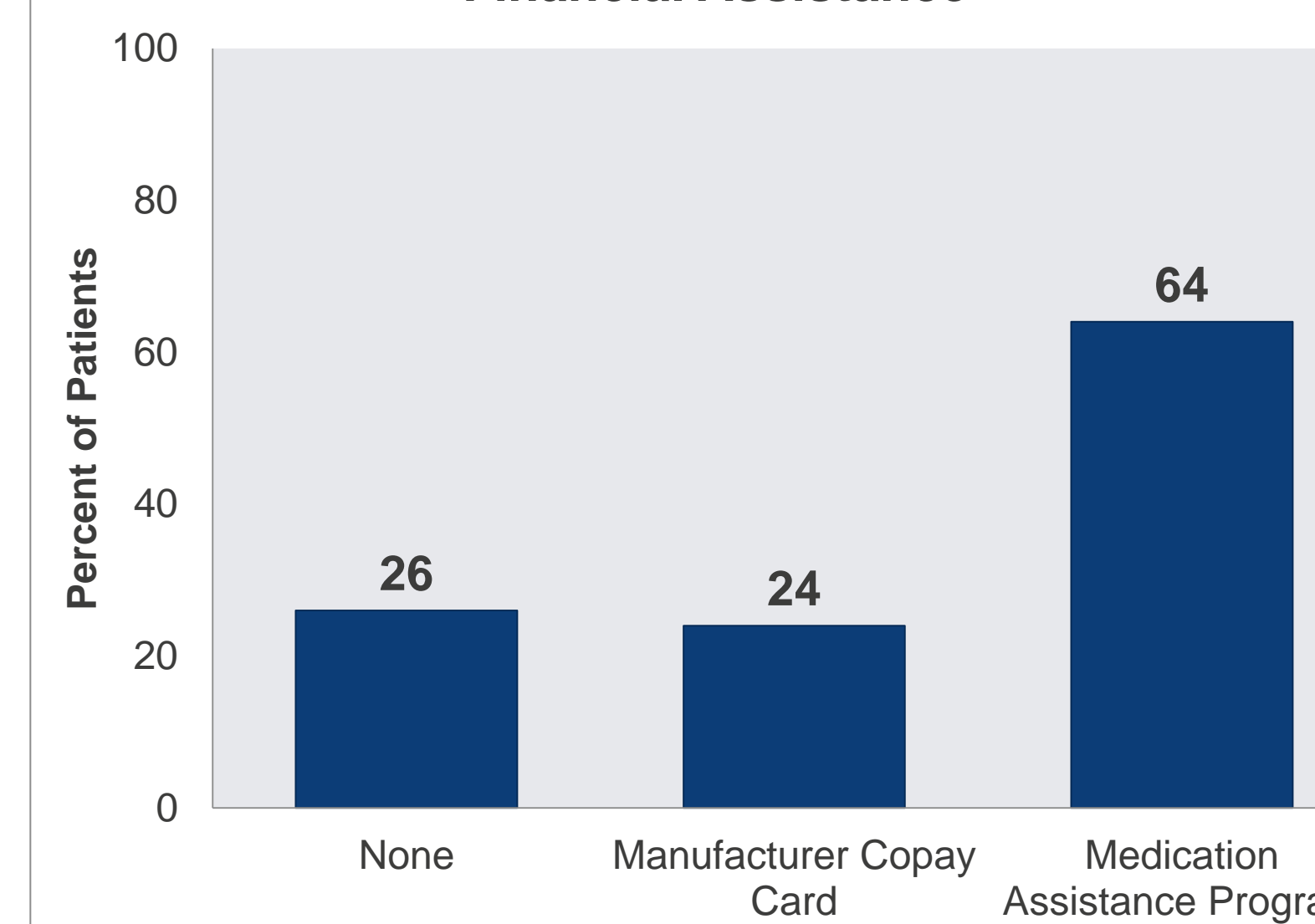


Outcomes Related to Vanderbilt Specialty Pharmacy Patients

Pharmacist Contacts (N = 58)		
Overall pharmacist contacts (mean ±IQR)		3.2 (±2.3)
Contact Type	Explanation of type of contact	N (%)
Side effects	Side effect management and prescription of ancillary medication to address side effects	24 (41%)
Adherence	Interventions such as counseling, adherence plan, and tools (alarm, checklist, etc.)	5 (9%)
Care coordination	Connecting patients to providers and referrals to other departments	3 (5%)
Clinical management	Immunizations, lab monitoring, and clinical follow-up	20 (34%)
Improve access	Prior authorization completion, appeal completion, and obtaining financial assistance	46 (79%)
Other		10 (17%)

Contacts are reported per unique patient over the entire course of teriparatide treatment.

Financial Assistance



DISCUSSION

Primary Outcome:

Patients utilizing **VSP services** were **62% more likely to complete teriparatide treatment** and **49% less likely to drop out of treatment after completing 12 months** of teriparatide compared to non-VSP patients.

- A univariate logistic regression revealed that patients were more likely to complete treatment if they were non-smokers compared to smokers. Older age was also found to be significant in treatment completion rates with every 10 years increasing completion rate by 30%.
- After adjusting for pharmacy utilized, age, gender, fracture at baseline, and calcium supplementation, non-smokers were still three times more likely to complete treatment (OR of 2.83 with 95% Confidence Interval of 1.13-7.07 and P-value of 0.026).

Secondary Outcomes:

The majority of patients (**64%**) required the use of the **Vanderbilt Medication Assistance Program (MAP)** to complete teriparatide treatment. MAP is only available to VSP patients.

- The majority of VSP patients used some form of financial assistance (74%).
- Over the course of two years, patients were contacted by the pharmacist an average of 3 times (+/- 2.5), with the **majority of contacts related to improving access to treatment.**

CONCLUSION

- VSP services improve teriparatide completion rates.
- Smoking status is an important predictor of teriparatide completion and should be addressed by physicians and pharmacists caring for this patient population.
- Pharmacists are integral in increasing access to treatment for specialty patients. As most patients receiving teriparatide require some form of financial assistance, ongoing evaluation of the impact of treatment cost and adherence in non-integrated specialty models could be useful.

References:

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2. FOSTER, S. A. et al. Adherence and persistence with teriparatide among patients with commercial, Medicare, and Medicaid insurance. Osteoporos Int, v. 22, n. 2, p. 551-7, Feb 2011. ISSN 1433-2965. Disponible em: < https://www.ncbi.nlm.nih.gov/pubmed/20798929 >